

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-10, 12 and 16 are pending in the present application. Claims 1-10, 12 and 16 have been amended, and claims 11, 13-15, 17 and 18 have been canceled by the present amendment.

In the outstanding Office Action, the title was objected to; claim 13 was rejected under 35 U.S.C § 112, second paragraph; claim 1 was rejected under 35 U.S.C § 102(b) as anticipated by Hatanaka et al.; and there were several rejections of the dependent claims.

Applicant thanks the Examiner for discussing this application with Applicant's representative on March 15, 2007. During the discussion, the differences between the present invention and applied art were discussed. No agreement was reached pending the Examiners further review when a response is filed. Comments presented during the interview are reiterated below.

Objection to the Title

Regarding the objection to the title, a new title has been added that is clearly indicative of the invention to which the claims are directed. Accordingly, it is respectfully request the objection to the title be withdrawn.

Rejection under 35 U.S.C § 112, second paragraph

Further, regarding the rejection of claim 13 under 35 U.S.C § 112, second paragraph, claim 13 has been canceled.

Rejections under 35 U.S.C § 102(b) and § 103(a)

Claim 1 stands rejected under 35 U.S.C. §102(b) as anticipated by Hatanika et al. This rejection is respectfully traversed.

As discussed during the interview, amended claim 1 is directed to a storage apparatus including a cantilever array having cantilever probes, an X-redundancy cantilever array configured to read and write information when at least one cantilever probe of a specific row in the cantilever array is defective, a Y-redundancy cantilever array configured to read and write information when at least one cantilever probe of a specific column in the cantilever array is defective, and a redundancy cantilever array controller configured to select the X-redundancy cantilever array and the Y-redundancy cantilever array when the at least one cantilever probe of the specific row and of the specific column in the cantilever array is defective.

These features are supported at least by Figure 2 and the corresponding description in the specification. For example, Figure 2 illustrates a storage apparatus including a cantilever array 110 having cantilever probes, an X-redundancy cantilever array 160 configured to read and write information when at least one cantilever probe of a specific row in the cantilever array is defective, a Y-redundancy cantilever array 150 configured to read and write information when at least one cantilever probe of a specific column in the cantilever array is defective, and a redundancy cantilever array controller 130, 140 configured to determine that a corresponding cantilever probe is defective when the corresponding cantilever probe is unable to read and write information, and configured to select the X-redundancy cantilever array and the Y-redundancy cantilever array when the at least one cantilever probe of the specific row and of the specific column in the cantilever array 110 is defective.

The Office Action indicates Hatanaka et al. disclose a multi probe-array arrangement for accessing a memory device and using a redundant array arrangement to compensate for defective array elements and cites col. 3, lines 15+. However, it is respectfully noted this cited section teaches against using a redundancy method for a probe defect. That is, this section indicates that because the number of probe electrodes is as large as 2,500, a mechanism for detecting defect probe electrodes, storing the positions of the defective probe electrodes, and replacing the defective probe electrodes with redundant probe electrodes is complicated. Therefore, it is respectfully one skilled in the art would not rely on the teachings in Hatanaka et al. as using redundant probe electrodes. Further, Hatanaka et al. does not teach or suggest a redundancy cantilever array controller configured to determine a defective cantilever probe and to select an

X-redundancy cantilever array and a Y-redundancy cantilever array when the cantilever probes of the specific row and of the specific column in the cantilever array are defective.

In addition, it is respectfully submitted the 35 U.S.C. §103(a) rejections noted in the Office Action have also been overcome as the claims rejected therein are dependent claims, and the applied secondary references also do not teach or suggest the features recited in independent claim 1.

For example, Lee et al. is related to defective cell areas and not to defective cantilevers. In Lee et al., a redundant decoder circuit is disclosed which includes an address storage circuit having a plurality of electrical erasable and programmable memory cells arranged to store address data corresponding to a defective cell. Lee et al. is not directed to defective cantilever probes. Further, Lee et al. does not teach or suggest the claimed controller of the present invention.

Similar comments apply to Fukuda et al. That is, Fukuda et al. discloses a memory cell array in which memory cells are aligned in a matrix and to which a two-dimensional address space is assigned. Fukuda et al. is not directed to cantilever probes. In addition, Fukuda et al., also does not teach or suggest the claimed controller.

In addition, the Office Action relies on Kuo as teaching a metal/polysilicon fuse. However, it is respectfully noted that Kuo also does not teach or suggest the features noted above.

Accordingly, it is respectfully submitted each of the rejections noted in the Office Action have been overcome and independent claim 1 and the claims depending therefrom are allowable.

CONCLUSION

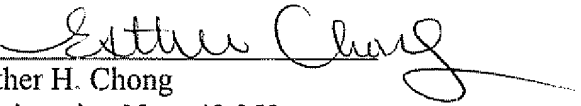
In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact David A. Bilodeau Reg. No. 42,325 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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